Risk of silica exposure among forestry workers

Details of Incident:
The BC Forest Safety Council has recently looked into the risk of forestry workers being exposed to damaging levels of airborne silica and the related health implications.

Silicosis is a form of occupational lung disease caused by inhalation of crystalline silica dust, and is marked by inflammation and scarring in the form of nodular lesions in the upper lobes of the lungs. The most common activities in which workers are at risk of exposure to silica dust are those that undertake chipping, grinding, drilling or hammering of rock or concrete that contains silica. Although silica is a common material, its relative presence in parent materials varies widely (e.g. crystalline silica is typically present in dust emanating from quartz, marble and sandstone).

The U.S. Department of Labor estimates that silica exposure is a serious threat to nearly two million American workers. However, low historic frequency of claims citing silicosis suggests that, while its risks are not insignificant, silica exposure is not a primary health concern for the BC forest industry.

Forestry work activities with a greater likelihood of exposure to crystalline silica include:

- Road construction that involves drilling and blasting (noting that wetted, well-ventilated coastal conditions reduce risks associated with airborne silica)
- Frequently hauling logs or driving in very dusty conditions, hauling gravel (road dust and from the material being transported)
- Working on a landing or at a dryland sort
- Sandblasting

Recent Study in BC
A local environment consultant engaged in a study recently completed at a north central BC sawmill expressed surprise at the silica levels that were measured / analyzed. The consultant explained that silica absorbed in tree bark is released during log processing, and that the amount of silica that becomes airborne during processing likely varies by season and tree species.

For example, logs transported during dusty summer conditions may accumulate substantial silica while logs hauled over winter roads appear to attract less silica (less dust, and slush tends to wash away sand that has accumulated from a heavily sanded road).

Aspen has porous, absorptive bark. Aspen logs typically need to dry longer at roadside or in the mill yard before being processed. Thus, it has a greater likelihood of capturing silica content during transport and storage, and then releasing it during de-barking and milling, presenting an exposure risk to nearby workers.
Silica content in fly ash at some pulp mills is creating concerns and prompted safety leads to install personal monitors on loader operators that handle fly ash. They are similarly concerned that truckers who haul fly ash or travel through the area may be at risk of exposure. The consultant relayed that no conclusive results have been demonstrated, so far. He also indicated that there is no baseline information to confirm or deny the magnitude of silica exposure risks to log haulers or pickup drivers on dusty roads, emphasizing that risks vary depending on the actual components in the dust.

**Recommended Preventative Actions:**
Indications are that while the general risk of silica exposure for forestry workers is not high, companies with work sites or conditions that suggest there may be substantial presence of silica-laden dust are encouraged to consider sampling to understand those conditions and any associated risks.

**Reference Material:**
WorkSafeBC issued a bulletin ‘The dangers of breathing silica dust’ in April 2009 (reference material attached).

http://www2.worksafebc.com/publications/posters.asp?reportID=35498

Individuals or firms that are looking to develop a strategy to identify / manage silica exposure risk may be interested in materials offered at www.silica-safe.org. Although based on U.S. regulations and organizations, the concepts are applicable here in British Columbia.